

**REMARKS**

Claims 1, 11, 17, 19, and 20 have been amended. Claims 1 through 20 remain in the application.

The drawings were objected to as set forth on the Draftsperson's Review PTO-948.

Attached to this Amendment is a copy of the corrected drawings to overcome the objections set forth on the Draftsperson's Review PTO-948. It is respectfully submitted that the corrected drawings overcome the objections and are acceptable.

Claim 17 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses this rejection.

Claim 17 has been amended to change its dependency to claim 16 for proper antecedent basis. It is respectfully submitted that claim 17 is allowable over the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1 through 9, 11 through 17, 19, and 20 were rejected under 35 U.S.C. § 103 as being unpatentable over Hutchings (U.S. Patent No. 2,206,356) in view of Hoover (U.S. Patent No. 4,964,391) and further in view of Feinberg (U.S. Patent No. 3,234,959). Applicant respectfully traverses this rejection.

U.S. Patent No. 2,206,356 to Hutchings discloses a check valve. A valve casing 6 is provided at each end with screw threads to receive an outer member 7 of the unions whose inner members 8 are screwed to the end of pipes 9. A movable valve is constructed of a tubular portion 11 which is made to freely slide in a hole 12 provided in a valve cage 12 which has on one end an outwardly extending flange 14 tightly clamped between the inner member 8 of the

union and the end of the valve casing 6. The other end of the valve cage 13 is provided with a valve seat 15 arranged to be engaged by a valve cap 16 rigidly secured to the one end of the tubular portion 11 being provided with a shoulder 17 to serve as a stop against the one end of the valve cage 13. A plurality of holes 19 are shown through the tubular portion 11 a considerable distance from the valve cap 16 and fibre washer 20 which form a free passage for the fluid within the tubular portion 11 to enter the interior of the valve casing 6 when the valve is in a considerable open position. Hutchings does not disclose a valve housing adapted to be disposed in an outlet member of a fuel pump and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position.

U.S. Patent No. 4,964,391 to Hoover discloses a check valve for engine fuel delivery systems. A fuel delivery system 20 includes a fuel pump 22 for delivering fuel under pressure from a supply or tank 24 to a fuel consumer 26, such as an internal combustion engine. A check valve 28 is connected in a fuel line between the fuel pump 22 and the engine for permitting free flow of fuel from the pump to the engine, but preventing back-flow of fuel from the engine to the pump when the pump is shut off. Hoover does not disclose a valve housing adapted to be disposed in an outlet member of a fuel pump and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position.

U.S. Patent No. 3,234,959 to Feinberg discloses a checking valve device. A valve has a casing 10 and a pair of tubular coupling members 14,15 screwed into access openings 12,13 of the casing 10. A pair of tubular sleeve members 28,29 is positioned within the casing 10 before the coupling members 14,15 are screwed in place. A pair of fluid discharge orifices 35,36 is formed in the side walls of the sleeve members 28,29 upwardly from the closed ends of those members to provide separate fluid passages through the valve. Feinberg does not disclose a valve

housing adapted to be disposed in an outlet member of a fuel pump, a valve seat formed on an interior surface of the valve housing, and a valve member disposed in the valve housing and having a closed position to operatively engage the valve seat.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a check valve for a fuel pump including a valve housing adapted to be disposed in an outlet member of the fuel pump and a valve seat formed on an interior surface of the valve housing. The check valve also includes a valve member disposed in the valve housing and having a closed position to operatively engage the valve seat to prevent fuel from flowing through the outlet member and an open position to allow fuel to flow through the outlet member. The valve member has a single outlet port to allow flow from the valve member when the valve member is in the open position.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie

obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

None of the references cited, either alone or in combination, teaches or suggests the claimed invention of claim 1. Specifically, Hutchings ‘356 merely discloses a check valve having a plurality of holes through a tubular portion a considerable distance from a valve cap and fibre washer which form a free passage for the fluid within the tubular portion to enter the interior of a valve casing when the valve is in a considerable open position. [Hutchings ‘356 lacks a valve housing adapted to be disposed in an outlet member of a fuel pump and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position.] Hoover ‘391 merely discloses a check valve for engine fuel delivery systems in which a check valve is connected in a fuel line between a fuel pump and an engine. [Hoover ‘391 lacks a valve housing adapted to be disposed in an outlet member of a fuel pump and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position.] Feinberg ‘959 merely discloses a valve checking device having a casing, a pair of tubular coupling members, a pair of tubular sleeve members positioned within the casing before the coupling members are screwed in place, and a pair of fluid discharge orifices formed in the side walls of the sleeve members. [Feinberg ‘959 lacks a valve housing adapted to be disposed in an outlet member of a fuel pump, a valve seat formed on an interior surface of the valve housing, and a valve member disposed in the valve housing and having a closed position to operatively engage the valve seat.] There is no suggestion or motivation in the art for combining Hutchings ‘356, Hoover ‘391, and Feinberg ‘959 together.

The references, if combinable, fail to teach or suggest the combination of a check valve for a fuel pump including a valve housing adapted to be disposed in an outlet member of the fuel pump, a valve seat formed on an interior surface of the valve housing, a valve member disposed in the valve housing and having a closed position to operatively engage the valve seat to prevent fuel from flowing through the outlet member and an open position to allow fuel to flow through the outlet member in which the valve member has a single outlet port to allow flow from the valve member when the valve member is in the open position as claimed by Applicants. The claimed combination is novel and unobvious because the check valve has a mono-port on the pintel, which reduces oscillations and objectionable noise. The Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claim 1 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

As to claim 11, claim 11, as amended, clarifies the invention claimed as a check valve for a fuel pump including a valve housing adapted to be disposed in an outlet member of the fuel pump and a valve seat formed on an interior surface of the valve housing. The check valve also includes a valve member disposed in the valve housing and having an annular groove adjacent the valve seat and including a seal disposed in the groove. The valve member has a closed position in which the seal engages the valve seat to prevent fuel from flowing through the outlet member and an open position to allow fuel to flow through the outlet member. The valve member has a single outlet port to allow flow from the valve member when the valve member is in the open position.

None of the references cited, either alone or in combination, teaches or suggests the claimed invention of claim 11. Specifically, Hutchings '356 merely discloses a check valve having a plurality of holes through a tubular portion a considerable distance from a valve cap and

fibre washer which form a free passage for the fluid within the tubular portion to enter the interior of a valve casing when the valve is in a considerable open position. { Hutchings '356 lacks a valve housing adapted to be disposed in an outlet member of a fuel pump and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position. } Hoover '391 merely discloses a check valve for engine fuel delivery systems in which a check valve is connected in a fuel line between a fuel pump and an engine. { Hoover '391 lacks a valve housing adapted to be disposed in an outlet member of a fuel pump and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position. } Feinberg '959 merely discloses a valve checking device having a casing, a pair of tubular coupling members, a pair of tubular sleeve members positioned within the casing before the coupling members are screwed in place, and a pair of fluid discharge orifices formed in the side walls of the sleeve members. { Feinberg '959 lacks a valve housing adapted to be disposed in an outlet member of a fuel pump, a valve seat formed on an interior surface of the valve housing, and a valve member disposed in the valve housing and having an annular groove adjacent the valve seat and including a seal disposed in the groove and having a closed position in which the seal engages the valve seat. } There is no suggestion or motivation in the art for combining Hutchings '356, Hoover '391, and Feinberg '959 together.

The present invention sets forth a unique and non-obvious combination of a check valve having a mono-port on the pintel, which reduces oscillations and objectionable noise. The references, if combinable, fail to teach or suggest the combination of a check valve for a fuel pump including a valve housing adapted to be disposed in an outlet member of the fuel pump, a valve seat formed on an interior surface of the valve housing, a valve member disposed in the valve housing and having an annular groove adjacent the valve seat and including a seal disposed

in the groove and having a closed position in which the seal engages the valve seat to prevent fuel from flowing through the outlet member and an open position to allow fuel to flow through the outlet member in which the valve member has a single outlet port to allow flow from the valve member when the valve member is in the open position as claimed by Applicants.

Further, the CAFC has held that “[t]he mere fact that prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification”. In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). The Examiner has failed to show how the prior art suggested the desirability of modification to achieve Applicant’s invention. Thus, the Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claim 11 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

As to claim 19, claim 19, as amended, clarifies the invention claimed as a fuel pump including an outlet member having a passageway therethrough, a valve housing disposed in the passageway of the outlet member, and a valve seat formed on an interior surface of the valve housing. The fuel pump also includes a valve member disposed in the valve housing and having an annular groove adjacent the valve seat and including a seal disposed in the groove. The fuel pump includes a spring disposed about the valve member to urge the valve member toward the valve seat in a closed position in which the seal engages the valve seat to prevent fuel from flowing through the outlet member. The valve member has a single outlet port to allow flow from the outlet port when the valve member is in an open position to allow fuel to flow through the outlet member.

None of the references cited, either alone or in combination, teaches or suggests the claimed invention of claim 19. Specifically, Hutchings ‘356 merely discloses a check valve

having a plurality of holes through a tubular portion a considerable distance from a valve cap and fibre washer which form a free passage for the fluid within the tubular portion to enter the interior of a valve casing when the valve is in a considerable open position. (Hutchings '356 lacks a fuel pump having an outlet member having a passageway therethrough, a valve housing disposed in the passageway of the outlet member, and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position.] Hoover '391 merely discloses a check valve for engine fuel delivery systems in which a check valve is connected in a fuel line between a fuel pump and an engine. (Hoover '391 lacks a fuel pump having an outlet member having a passageway therethrough, a valve housing disposed in the passageway of the outlet member, and a valve member having a single outlet port to allow flow from the valve member when the valve member is in the open position.) Feinberg '959 merely discloses a valve checking device having a casing, a pair of tubular coupling members, a pair of tubular sleeve members positioned within the casing before the coupling members are screwed in place, and a pair of fluid discharge orifices formed in the side walls of the sleeve members. (Feinberg '959 lacks a fuel pump having an outlet member having a passageway therethrough, a valve housing disposed in the passageway of the outlet member, a valve seat formed on an interior surface of the valve housing, and a valve member disposed in the valve housing and having an annular groove adjacent the valve seat and including a seal disposed in the groove and having a closed position in which the seal engages the valve seat.) There is no suggestion or motivation in the art for combining Hutchings '356, Hoover '391, and Feinberg '959 together.

The references, if combinable, fail to teach or suggest the combination of a fuel pump including an outlet member having a passageway therethrough, a valve housing disposed in the passageway of the outlet member, a valve seat formed on an interior surface of the valve



housing, a valve member disposed in the valve housing and having an annular groove adjacent the valve seat and including a seal disposed in the groove, a spring disposed about the valve member to urge the valve member toward the valve seat in a closed position in which the seal engages the valve seat to prevent fuel from flowing through the outlet member in which the valve member has a single outlet port to allow flow from the outlet port when the valve member is in an open position to allow fuel to flow through the outlet member as claimed by Applicants. The claimed combination is novel and unobvious because the check valve has a mono-port on the pintel, which reduces oscillations and objectionable noise. The Examiner has failed to establish a case of prima facie obviousness. Therefore, it is respectfully submitted that claim 19 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

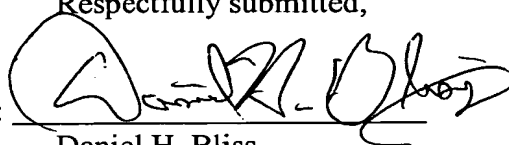
Claims 10 and 18 were rejected under 35 U.S.C. § 103 as being unpatentable over Hutchings '356 in view of Hoover '391 and Feinberg '959 and further in view of Gimby (U.S. Patent No. 4,938,254). Applicant respectfully traverses this rejection for the same reasons given above to claims 1 and 11.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 1 through 20 are improper. Therefore, it is respectfully submitted that claims 1 through 20 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

By:

A handwritten signature in black ink, appearing to read "Daniel H. Bliss", written over a horizontal line.

Daniel H. Bliss  
Reg. No. 32,398

Delphi Technologies, Inc.  
Legal Staff – Intellectual Property  
P.O. Box 5052  
Troy, Michigan 48007  
(248) 813-1214

Date: November 7, 2003

Attorney Docket No.: DP-306071